

REMARKS

1. The Examiner's reconsideration of the application is urged in view of the amendments above, the following corrections and the attachments hereto and the comments which follow.

2. In the Office communication, page 2, the Examiner rejected the claims 1- 5, 8, 9, 12 and 13 under 35 U.S.C. 102 (c) as being anticipated by Oishi et al. (US 2001/0005308 A1).

Amended independent claim 1 is filed herewith which is a combination of subject-matter from original claims 1, 5 and 10.

Amended claim 1 describes a panel display comprising the following features:

- a) a substrate having an array of addressable light emitting devices, the array having a light emitting display side facing in a first direction;
- b) an input means for inputting an arbitrary image;
- c) drive circuitry for said array of light emitting devices for driving said light emitting devices to display the arbitrary image;
- d) electrical connections from said light emitting devices to the drive circuitry, said electrical connections extending from a rear side of the substrate in a second direction opposed to the first direction;
- e) a heat sink comprising a heat transporting plate having a plurality of holes defined therein through which said electrical connections pass;
- f) said drive circuitry being spaced apart from said array in such a manner that at least one cooling channel is defined between said array and said drive circuitry for extraction of heat from said array and said drive circuitry by passage of a cooling fluid through the cooling channel,
- g) said heat sink being disposed in the region of the rear side of said array of light emitting devices opposite to said display side and

h) wherein the cooling channel is sealed with respect to both the array of addressable light emitting devices, and with respect to the drive circuitry for said array of light emitting devices.

Oishi et al. '308 discloses a display apparatus containing a cooling structure. The display apparatus comprises a plasma display panel, a circuit board mounting a power source circuit and a driving circuit for driving the plasma channel and a chassis for holding the plasma display panel and the circuit board.

The chassis has been formed with elongated air passages for providing increased areas for contacting the outside air. One side of the chassis is provided with heat radiating fins. No details are given in Figures 1 and 2, although showing an embodiment of the invention, on the electrical connections between the display panel and the circuit board, nor can such details be found in the correspondent part of the specification of the Oishi Patent Application. However, in the specification and the figures concerning the prior art, the Oishi Patent Application shows that these connections are made by a flexible cable, passing completely at the outside of the apparatus. Therefore it is obvious that the electrical connections in this known device are arranged in the same way as in the described prior art.

The following features, present in the amended claim, are not disclosed in the Oishi Patent Application:

feature d): the electrical connections do not extend from the rear side of the display panel in a second direction opposed to the first direction (which in claim 1 is the direction the display is faced to);

feature e) : the chassis has not the general form of a plate (see e.g. Fig. 2) and no provisions (holes) are made for passing the electrical connections.

Due to these differences, the cooling structure in Oishi is completely different from the one according to the claimed invention.

Claim 1 is thus not anticipated by Oishi.

3. In the Office communication, page 3, the Examiner rejected the claims 1- 12, 14 and 15 under 35 U.S.C. 102 (b) as being anticipated by Himeno et al. (US 5,390,093).

Himeno et al. discloses an illuminating display device for use with a mosaic panel. The display device comprises a base frame and a circuit board, mounted on a surface of the base frame, whereby the circuit board is the light-emitting plate (comprising a large number of LED's). The display device is mountable to and removable from a lattice-shaped metallic grid. The heat generated by the illuminating device is removed over different ways: most of the heat generated by the light-emitting diodes is conducted from the circuit board via the base frame to the metallic grid to the external air while another part of the heat is radiated from the surface of the circuit board and the surface of the base frame into the atmosphere (col. 5: 33- 46).

The following features, present in the amended claim, are not disclosed in the Himeno Patent:
feature e: there is no plate with a plurality of holes for passing the electrical connections; there is only a base frame with a single big central opening;

feature f: there is no particular cooling channel between the circuit board and the driving unit, but all components are exposed to the ambient air and the biggest part of the generated heat is transported over the whole grid:

feature h: because there is no cooling channel, this channel cannot be sealed with respect to both the array of addressable light emitting devices, and with respect to the drive circuitry for said array of light emitting devices; as explained already above, all components are exposed to the ambient air.

Claim 1 is thus also not anticipated by the Himeno Patent.

All other claims being dependent on claim 1, these claims are also not anticipated by the cited prior art.

4. The amended claims would not have been obvious in view of the cited prior art.

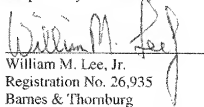
In order to examine the non-obviousness of claim 1 it seems appropriate to take the Oishi Patent Application as starting point.

As discussed already above, features d) and e) of claim 1 are missing in the Oishi Application. Combining the Oishi Application with the teachings in the Himeno Patent will not lead to a panel display according to claim 1. On the contrary, replacing the chassis from Oishi by the base frame of Himeno will result in a system without (sealed) cooling channels and the cooling of the system will be done by the ambient air.

It can thus been concluded that claim 1 is also non-obvious in view of the cited prior art. The same can be said for the dependent claims.

5. Given the above, it is submitted that the application is now in condition for allowance, and the Examiner's further and favorable reconsideration in that regard is urged.

Respectfully submitted,

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